

Title (en)
APPARATUS AND METHOD FOR AMPLIFYING A RADIO-FREQUENCY SIGNAL

Title (de)
VORRICHTUNG UND VERFAHREN ZUR VERSTÄRKUNG EINES RADIOFREQUENZSIGNALS

Title (fr)
APPAREIL ET PROCÉDÉ POUR AMPLIFIER UN SIGNAL DE RADIOFRÉQUENCE

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Abstract (en)
[origin: WO2013128335A1] The present invention provides an apparatus and a method for amplifying a radio-frequency signal and an MRI system comprising the apparatus. An aspect of the present invention proposes an apparatus for amplifying a radio-frequency (RF) signal, comprising: a magnetically insensitive input balun (10) for converting the RF signal in unbalanced format into balanced signals; at least two groups of MOSFETs, each group including at least one MOSFET (30, 40), for respectively amplifying the balanced signals in a push-pull way; a magnetically insensitive output balun (60) for converting the amplified balanced signals into an unbalanced format; a magnetically insensitive input matching network (20, 20') for matching input impedances of the at least two groups of MOSFETs with output impedances of the magnetically insensitive input balun (10); a magnetically insensitive output matching network (50, 50') for matching output impedances of the at least two groups of MOSFETs with input impedances of the magnetically insensitive output balun (60); a magnetically insensitive protection circuit (70, 70') for protecting a direct current (DC) power supply which provides DC for driving the at least two groups of MOSFETs from the amplified balanced signals. The proposed apparatus not only has a high power output but is also magnetically insensitive, so that it can operate in an environment of strong magnetic fields, such as the MRI scanner room.

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